



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Red Bluff Fish & Wildlife Office
10950 Tyler Road, Red Bluff, California 96080
(530) 527-3043, FAX (530) 529-0292

March 26, 2021

To: Interested Parties

From: Scott Voss, Supervisory Fish Biologist, Red Bluff Fish and Wildlife Office

Subject: Biweekly report (March 12, 2021 - March 25, 2021)

Please find attached preliminary daily estimates of passage, 90% confidence intervals, and fork length ranges of unmarked juvenile salmonids sampled at Red Bluff Diversion Dam for the period March 12, 2021 through March 25, 2021. Race designation was assigned using length-at-date criteria.

Mean cumulative weekly passage of winter Chinook thru March 25 (week 12) for the last 18 years of passage data is 99.8% with one standard deviation measuring 0.2%.

NOTE: Rotary-trapping/juvenile fish monitoring operations at the Red Bluff Diversion Dam were suspended from March 25, 2020 to June 30, 2020, to protect employee health and safety resulting from the Coronavirus/COVID-19 global pandemic. Sampling operations resumed with the start of winter Chinook salmon brood year 2020, on July 1, 2020.

This report also contains graphical displays of salmonid passage dating back to 2014 for comparison.

Please note that data contained in these reports is subject to revision as this data is preliminary and undergoing QA/QC procedures.

If you have any questions, please feel free to contact me at (530) 527-3043 ext 243.

Table 1.— Preliminary estimates of passage by brood-year (BY) and run for unmarked juvenile Chinook salmon and steelhead trout captured by rotary-screw traps at Red Bluff Diversion Dam (RK391), Sacramento River, CA, for the dates listed below. Results include estimated passage, peak river discharge volume, water temperature, turbidity, and fork length (mm) range in parentheses. A dash (-) indicates that sampling was not conducted on that date.

Date	Discharge volume (cfs) ¹	Water temperature (°C)	Water turbidity (NTU)	Estimated passage				
				BY20 Winter	BY20 Spring	BY20 Fall	BY20 Late-Fall	BY21 RBT
3/12/2021	5,376	10.8	2.6	0 (-)	606,728 (65 – 86)	58,762 (35 – 65)	0 (-)	238 (84)
3/13/2021	4,973	11.2	1.9	0 (-)	82,440 (66 – 87)	17,974 (35 – 65)	0 (-)	0 (-)
3/14/2021	4,843	10.9	—	—	—	—	—	—
3/15/2021	6,310	9.9	5.5	0 (-)	10,087 (67 – 85)	3,608 (33 – 66)	0 (-)	45 (24)
3/16/2021	9,922	9.9	8.4	1,402 (103 – 115)	40,211 (67 – 86)	30,604 (34 – 66)	0 (-)	0 (-)
3/17/2021	6,634	10.9	3.8	0 (-)	2,634 (68 – 85)	20,079 (27 – 67)	0 (-)	0 (-)
3/18/2021	5,469	10.9	2.8	49 (92)	1,443 (68 – 86)	4,502 (31 – 67)	0 (-)	49 (93)
3/19/2021	9,225	10.7	2.5	0 (-)	259 (83)	1,909 (35 – 45)	0 (-)	0 (-)
3/20/2021	8,656	11.4	—	—	—	—	—	—
3/21/2021	7,331	11.8	—	—	—	—	—	—
3/22/2021	5,857	12.1	—	—	—	—	—	—
3/23/2021	5,469	11.9	2.5	0 (-)	53,161 (71 – 85)	55,041 (35 – 70)	0 (-)	47 (26)
3/24/2021	5,210	11.8	1.9	0 (-)	39,743 (71 – 86)	39,783 (34 – 70)	0 (-)	0 (-)
3/25/2021	5,059	12.2	1.6	0 (-)	13,690 (72 – 83)	18,916 (32 – 71)	0 (-)	0 (-)
Biweekly Total ²				1,693	1,054,460	360,503	0	470
<i>Biweekly Lower 90% Confidence Interval</i>				-362	256,343	160,678	0	-68
<i>Biweekly Upper 90% Confidence Interval</i>				3,748	1,852,576	560,328	0	1,007
Brood Year Total				2,095,841	1,172,564	8,520,375	34,054	2,472
<i>Brood year Lower 90% Confidence Interval</i>				1,253,056	318,889	4,277,636	12,322	-307
<i>Brood year Upper 90% Confidence Interval</i>				2,938,625	2,026,238	12,763,114	55,787	5,250

¹ Peak daily discharge values do not account for diversions at RBDD and only represent peak flows registered at the Bend Bridge Gauging station (<http://cdec2.water.ca.gov/cgi-progs/queryFx?bnd>).

² Biweekly totals may be greater than the sum of the daily estimates presented in this table if sampling was not conducted on each day of the biweekly period. A dash (-) denotes those dates. To estimate daily passage for days that were not sampled, we impute missed sample days with the weekly mean value of days sampled within the week.

Juvenile Winter Chinook Salmon Estimated Passage

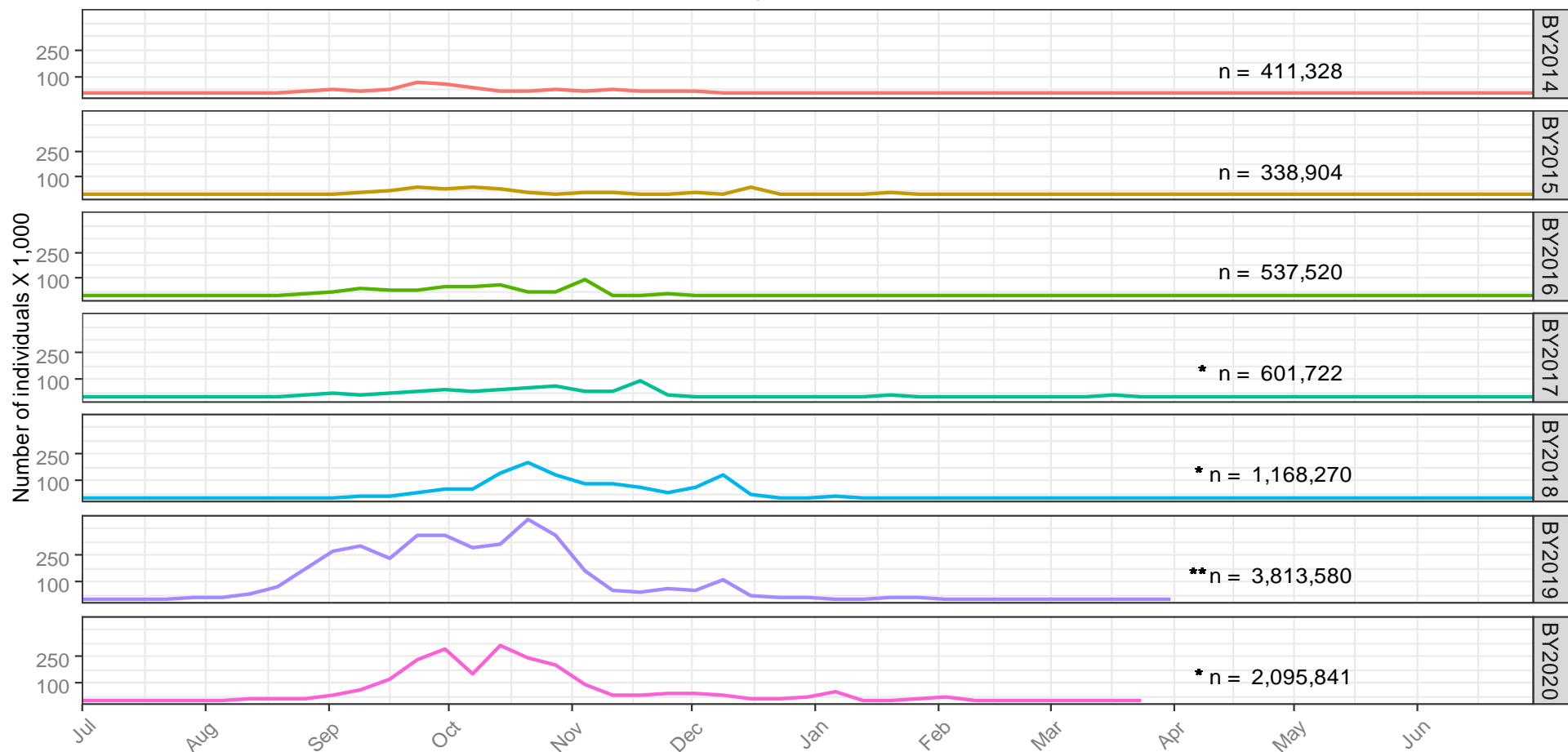


Figure 1. Weekly estimated passage of unmarked juvenile winter Chinook salmon at Red Bluff Diversion Dam (RK391) by brood-year (BY). Fish were sampled using rotary-screw traps for the period July 1, 2014 to present .

*Winter Chinook passage value reflects addition of length-at-date spring Chinook determined to be winter Chinook from genetic analysis during the period of October 16th thru November 18th during brood years 2017 thru 2020. See memos on 2018 & 2019 biweekly report pages for more info .

**Rotary-trapping/juvenile fish monitoring operations at the Red Bluff Diversion Dam were suspended from March 25, 2020 to June 30, 2020, to protect employee health and safety resulting from the Coronavirus/COVID-19 global pandemic .

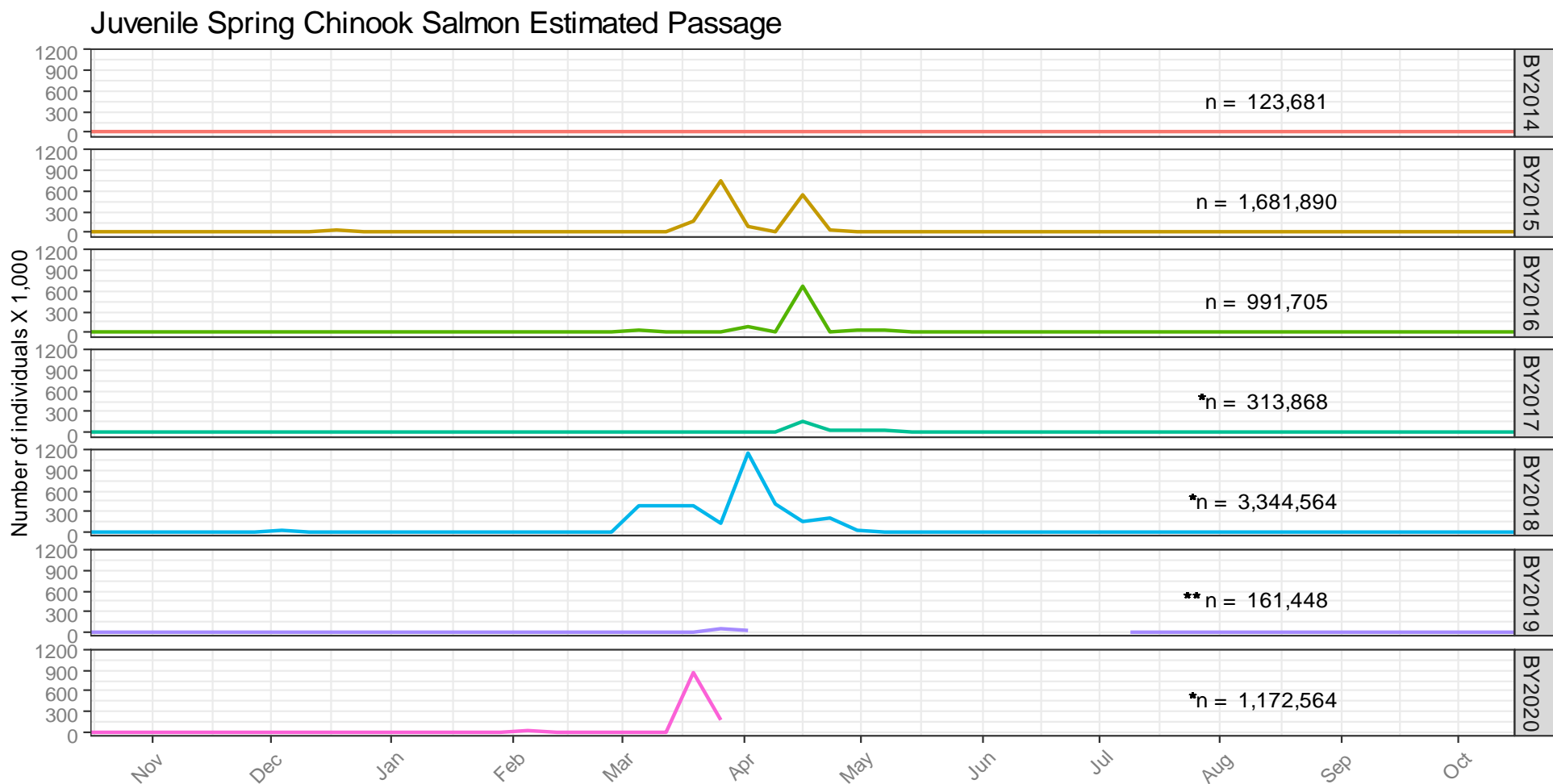


Figure 2. Weekly estimated passage of unmarked juvenile spring Chinook salmon at Red Bluff Diversion Dam (RK391) by brood-year (BY). Fish were sampled using rotary-screw traps for the period October 16, 2014 to present .

*Spring Chinook passage value reflects subtraction of length-at-date spring Chinook determined to be winter Chinook from genetic analysis during the period of October 16th thru November 18th during brood years 2017 thru 2020. See memos on biweekly report website for more info .

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Juvenile *Onchorhynchus mykiss* Estimated Passage

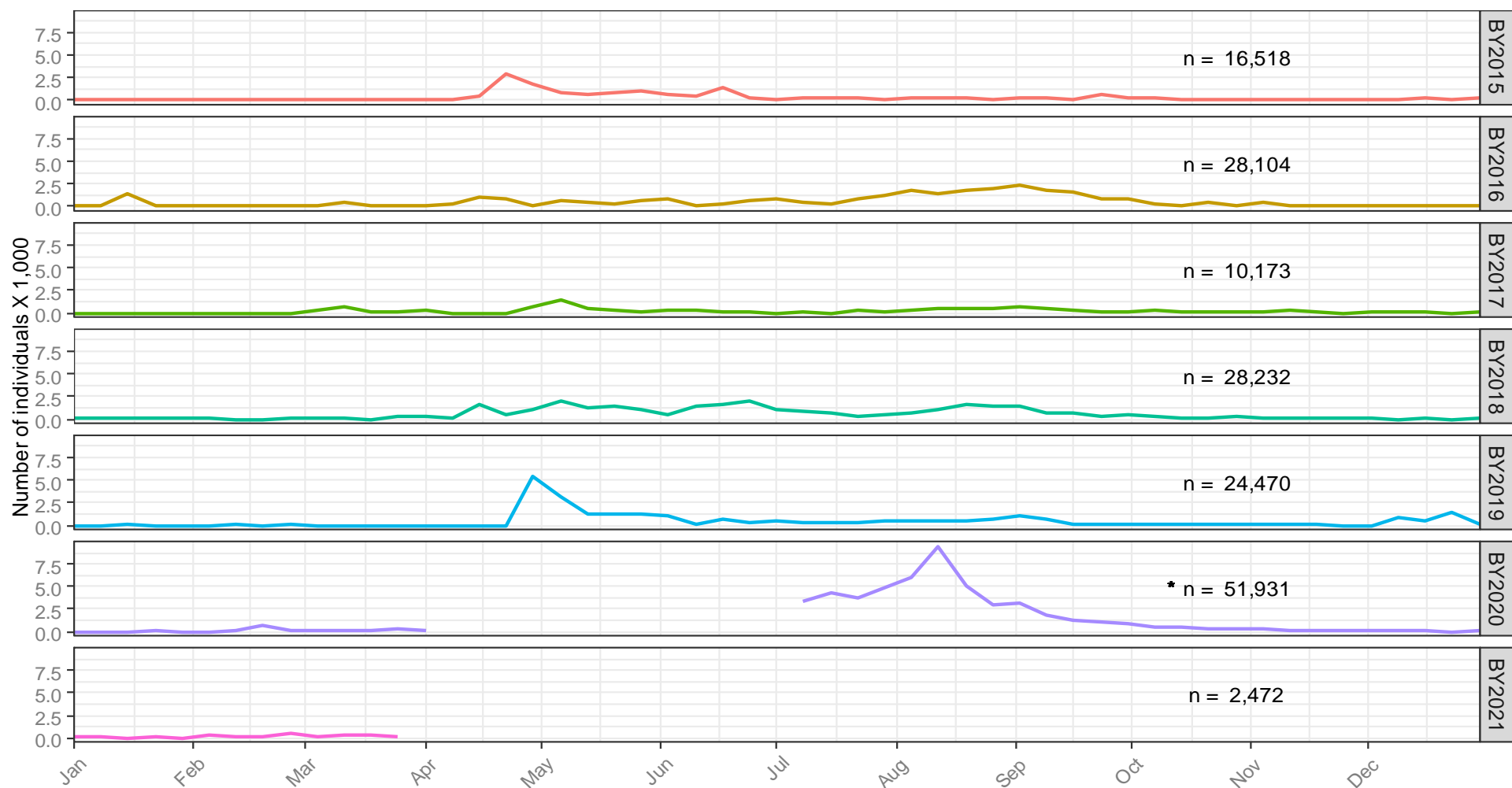


Figure 3. Weekly estimated passage of unmarked juvenile Rainbow/Steelhead trout at Red Bluff Diversion Dam (RK391) by brood-year (BY). Fish were sampled using rotary-screw traps for the period January 1, 2015 to present .

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Juvenile Fall Chinook Salmon Estimated Passage

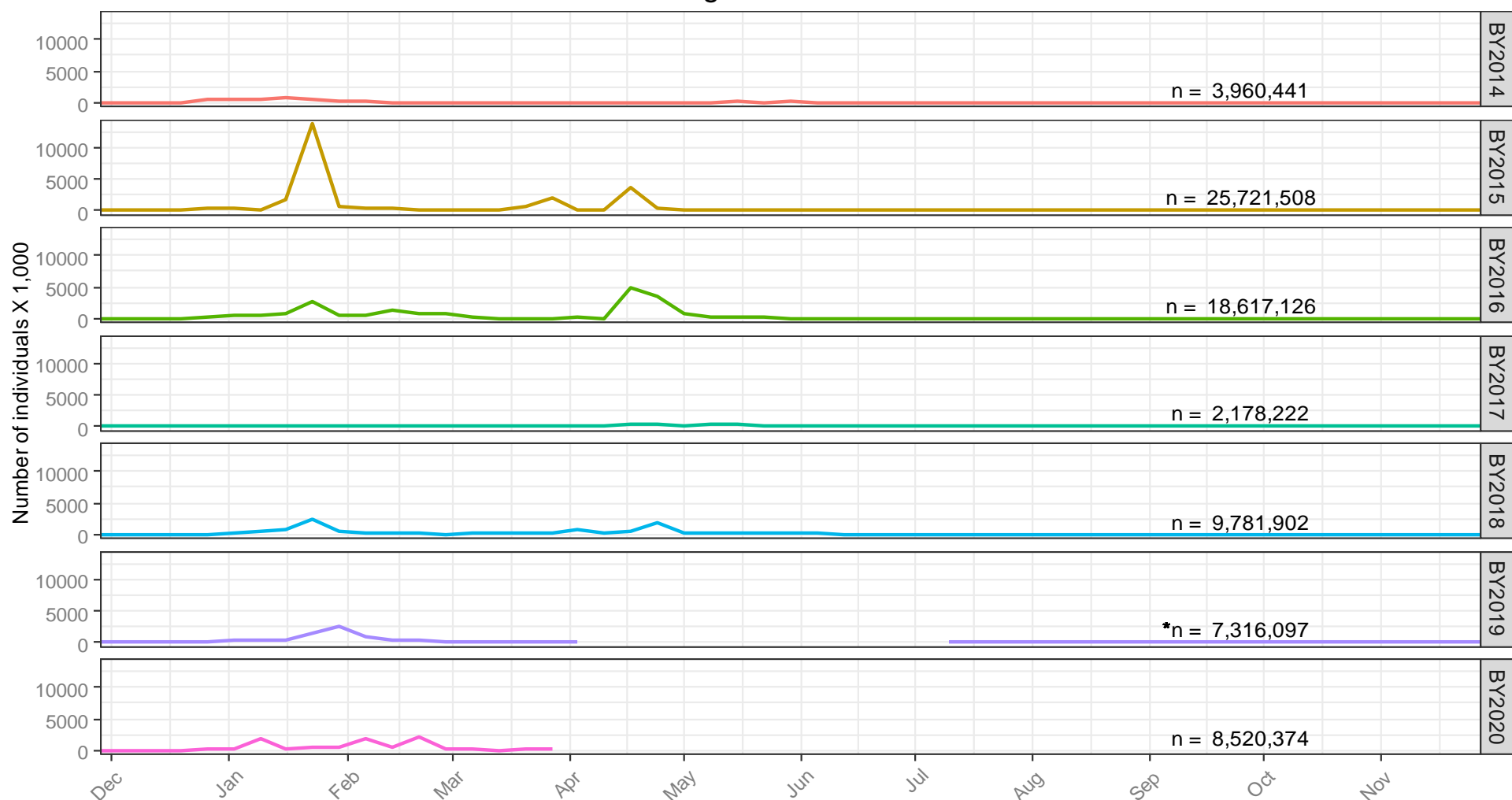


Figure 4. Weekly estimated passage of unmarked juvenile fall Chinook salmon at Red Bluff Diversion Dam (RK391) by brood-year (BY). Fish were sampled using rotary-screw traps for the period December 1, 2014 to present .

*Rotary-trapping/juvenile fish monitoring operations at the Red Bluff Diversion Dam were suspended from March 25, 2020 to June 30, 2020, to protect employee health and safety resulting from the Coronavirus/COVID-19 global pandemic .

Juvenile Late Fall Chinook Salmon Estimated Passage

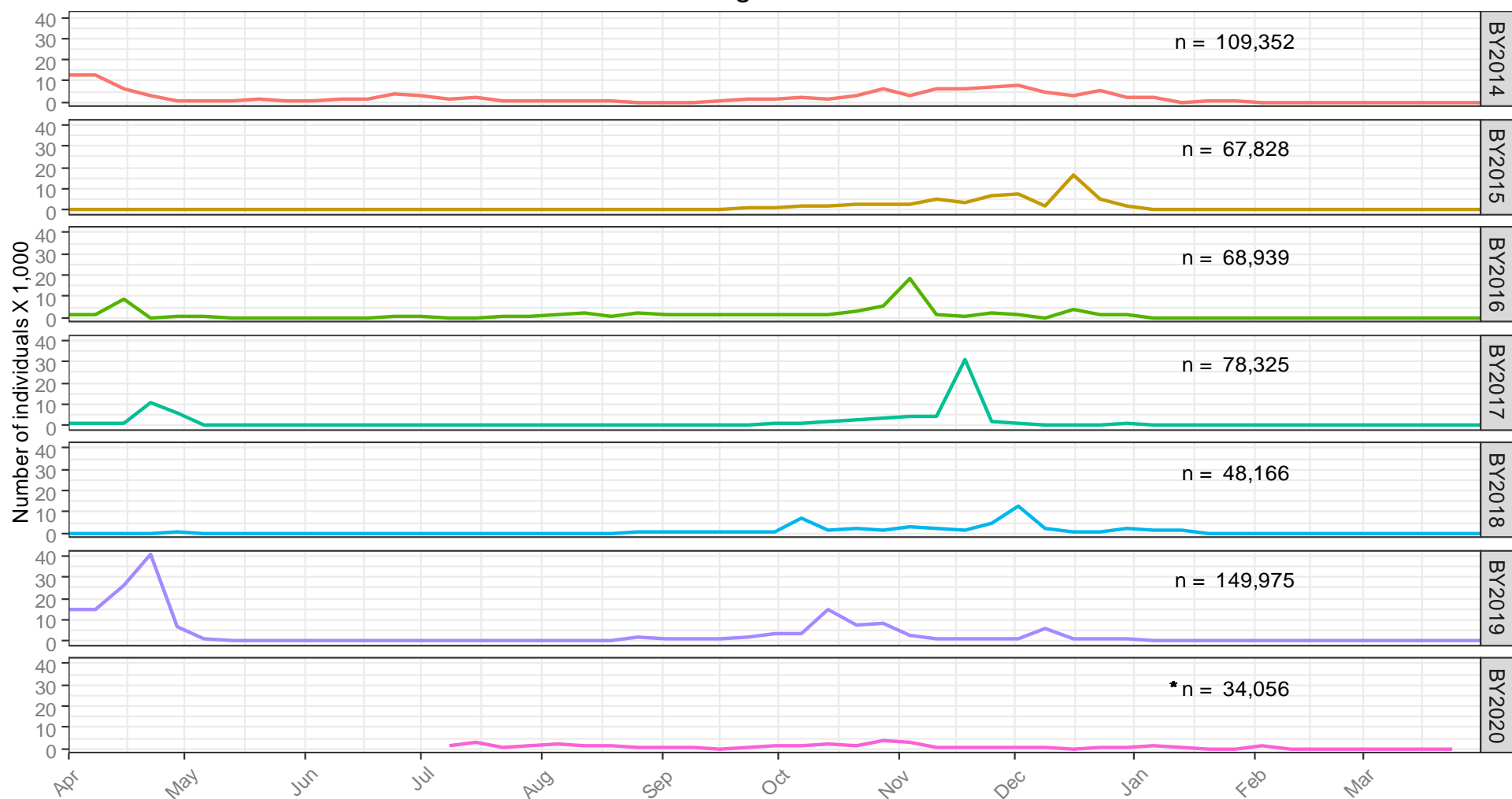


Figure 5. Weekly estimated passage of unmarked juvenile late fall Chinook salmon at Red Bluff Diversion Dam (RK391) by brood-year (BY). Fish were sampled using rotary-screw traps for the period April 1, 2014 to present.

*Rotary-trapping/juvenile fish monitoring operations at the Red Bluff Diversion Dam were suspended from March 25, 2020 to June 30, 2020, to protect employee health and safety resulting from the Coronavirus/COVID-19 global pandemic.

Weekly Estimated Chinook Passage at Red Bluff Diversion Dam - All Runs Combined

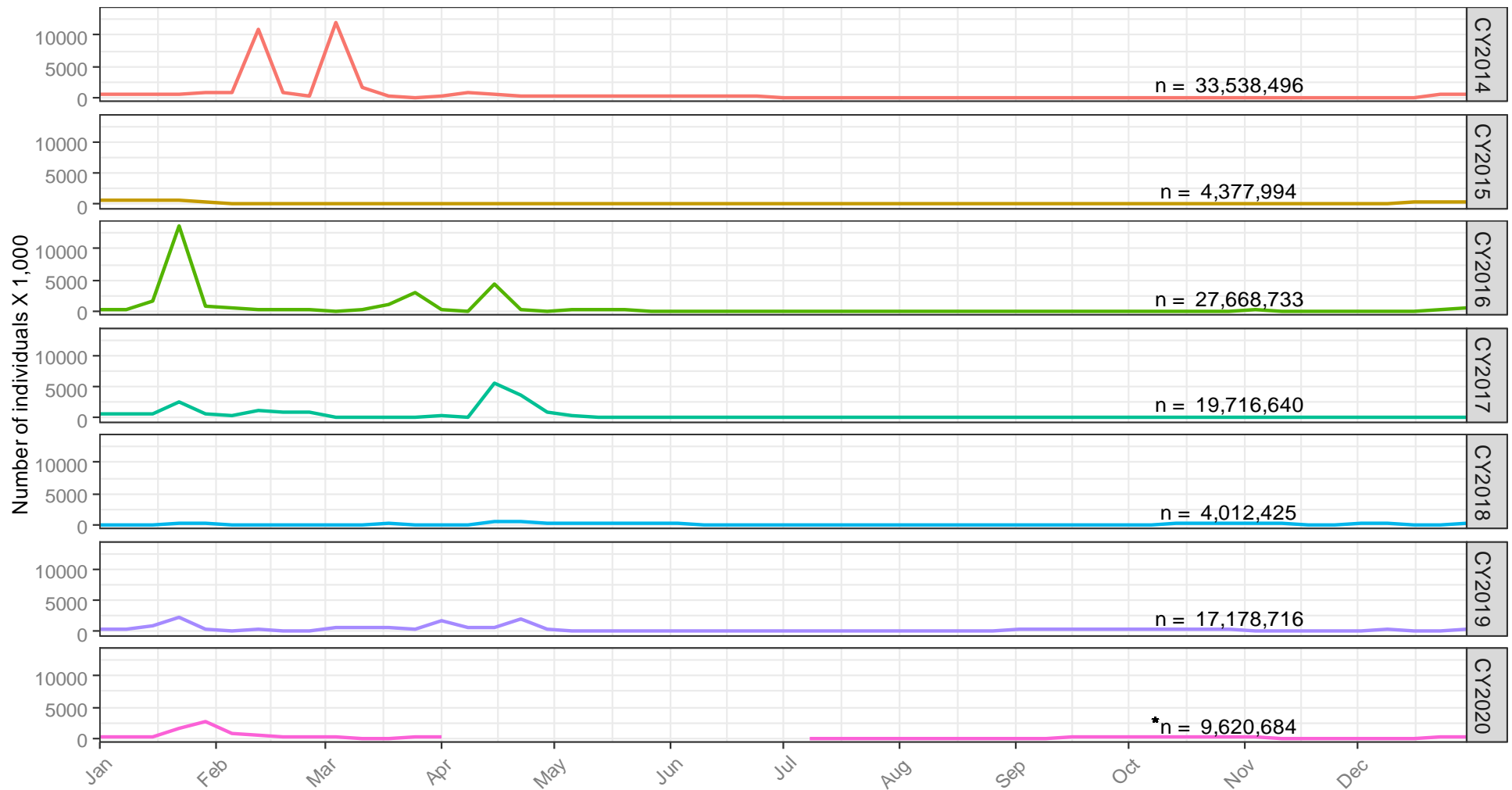


Figure 6. Weekly estimated passage of unmarked juvenile Chinook salmon at Red Bluff Diversion Dam (RK391) by calendar year. Fish were sampled using rotary-screw traps for the period January 1, 2014 to December 31, 2020 .

*Rotary-trapping/juvenile fish monitoring operations at the Red Bluff Diversion Dam were suspended from March 25, 2020 to June 30, 2020, to protect employee health and safety resulting from the Coronavirus/COVID-19 global pandemic .